

REMARKS

The Office Action dated December 8, 2004 has been carefully considered. The present Amendment is intended to be a complete response and to place the case in condition for allowance.

In the Action, the Examiner objected to the informalities in the Abstract. The Examiner also objected to informalities in claim 1. The Examiner rejected claims 1-7 under 35 U.S.C. § 112, second paragraph, as being indefinite; rejected claims 1-7 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,788,599 to Adachi et al. The Examiner also acknowledged receipt of Applicants' Information Disclosure Statement and returned an initialed copy of Form PTO-1449. The Examiner acknowledged and approved the drawings filed on January 7, 2004. The Examiner also acknowledged receipt of the certified copy of the priority document.

An amended Abstract is presented which addresses the informalities cited by the Examiner. Reconsideration and withdrawal of the objection to the Abstract are respectfully requested.

The specification and drawings are amended to provide a minor correction to change BSTP to ASTP in Fig. 6 and in page 24, line 24. No new matter is added, as the context of the discussion in the specification at page 24, line 21 to page 25, line 8 clearly indicates that ASTP was intended.

Turning to the rejection under 35 U.S.C. § 112, second paragraph, the Examiner stated the relationship between the "a step-out" that is recited in the individual claims 1 through 6, respectively, are unclear. Second, the Examiner stated that the relationship between the "a step position (ASTP)" recited in claim 2 and claim 1 are unclear. Third, the Examiner stated that the phrase, "on an occasion of step-out determination" in claims 2 through 6 is unclear and what the applicants are referring to is not understood. The claims

have been amended to more clearly state the subject matter and to address the § 112 rejection. Such amendment is clarifying in nature and is not believed to be, nor intended to be, narrowing. Reconsideration and withdrawal of the rejection are respectfully requested.

Applicants respectfully traverse the rejection under 35 U.S.C. § 102. In the § 102 rejection, the Examiner asserted that Adachi et al. disclose a continuously variable transmission system comprising a step motor (113), an input rotation detection means (i.e., the engine speed signal S3 or the turbine rotation speed signal S7), an output rotation detection means (i.e., the vehicle speed sensor S8), a selector position signal (S6), a braking signal (S5), an electronic control unit (101), a hydraulic control unit (102), a speed change ratio control unit (106), an actual speed change ratio calculation means (being the target ratio computing unit 410), which serves the functions of the claimed actual speed change ratio calculation means (i.e., column 6, lines 30-41), a step-out determination means (being the rotation ratio command unit (420), which serves the functions of the claimed step-out determination means (i.e., column 6, lines 42-47), a step-out correction means (being the step motor angle position adjustment unit (450), which serves the functions of the claimed step-out correction means (i.e., column 6, lines 47-49), a drive means for driving the step motor using the corrected ASTP (i.e., column 6, lines 47-49), wherein the step-out determination means determines a step-out of the step motor when a step-out determination means determines a step-out of the step motor when a step-out determination condition that hydraulic pressure is in a state capable of realizing a speed change ratio corresponding to a step position of the step motor stored in the speed change ratio control unit, wherein the step-out determination means determined a step-out of the step motor when a step-out determination condition that an alteration of the speed change ratio is a predetermined value, wherein the step-out determination means determines a step-out of the step motor when a step-out determination condition that acceleration or deceleration is a predetermined value, wherein the step-out determination means determines a step-out of the step motor when a

step-out determination condition that braking is not being operated, and wherein the step-out determination means determines a step-out of the step motor when a step-out determination condition that a lever is not being operated by a driver.

Thus, in the Office Action, the Examiner relies upon a listing of components and one particular passage from the Adachi et al. patent:

The speed change ratio control unit 106 comprises a target ratio computing unit 410 which computes a target rotation ratio i_{pr} corresponding to the running conditions based on various running condition signals such as the throttle opening signal S2 and engine speed signal S3, a rotation ratio command unit 420 which outputs a step motor drive signal S0 as a final command value based on a comparison between the target rotation ratio i_{pr} and real rotation ratio i_{pr} , and a real rotation ratio computing unit 430 which computes the real rotation ratio i_{pr} of the transmission based on the rotation speed signal S7 from the drive pulley 16 and the rotation speed signal S8 from the driven pulley 26.

The rotation ratio command unit 420 comprises a rotation ratio command value computing unit 440 which feeds back the real rotation ratio i_{pr} and computes a rotation ratio command value S_{ip} such that the rotation ratio varies with a predetermined characteristic towards the target rotation ratio i_{pr} , and a step motor angle position adjustment unit 450 which converts this computation result to an angle position of the step motor 113 and outputs it as a drive signal S0.

(‘599 patent, col. 6, lines 30-49).

The Examiner then asserts the determination of various step-out conditions by the step-out determination means without reference to any portion of the Adachi et al. patent. If the Examiner asserts that such determinations are explicitly disclosed, he should identify where in the Adachi et al. patent they are so disclosed. If the Examiner asserts that such determinations are implicitly disclosed, he should explain, making reference to the Adachi et al. patent. In the absence of such explicit or implicit disclosure, the Adachi et al. patent does not constitute an anticipatory reference, nor does it render the present invention obvious.

Moreover, the configuration, purpose and feedback control content differ greatly in Adachi et al. and the present invention. As shown in Figs. 3 and 4 of Adachi et al., feedback control is performed so that the real rotation ratio (i_{pR}) varies toward the target ration (i_{pT})

and a rotation ratio command value (Sip) is determined, then the rotation ratio command value (Sip) is transformed and outputted to the step position of the step motor.

Therefore, in the applied reference, by means of a general disturbance, the difference of the target ratio and the real rotation ratio, as a deviation of the target ratio and the real rotation ratio, is detected and Adachi et al. aims to correct the difference.

The “speed change ratio control function” indicated in the present invention arguably corresponds to such feedback control. However, although the feedback control of Adachi et al. is arguably performed in the present invention, the configuration and operation differ from each other greatly in that step-out judgment and step-out correction are further performed in the present invention.

Specifically, unlike the applied reference, the step position BSTP of the step motor corresponding to actual speed change ratio is compared with the memorized step position ASTP of the step motor which is memorized by the control unit which judges a step-out in the present invention.

However, in the applied reference, at the time of a step-out of the step motor, feedback control is carried out by a control unit which memorizes the step position ASTP of the step motor at its misaligned position.

Thereby in the applied reference, if the memorized step position ASTP of the step motor which is memorized by the control unit enters the “exceeded allowable step range” indicated in the present invention, control will become impossible. That is, in the applied reference, if the allowable step range from the above description exceeds the 1-200 step range, feedback control greater than that is dangerous so feedback control will become impossible (a step motor will not drive above that).

For example in Adachi et al., if the allowable step range is 0-200 steps, when the step position according to the rotation ratio command value (Sip) of rotation ratio feedback

control becomes 210 steps, since it becomes out of control, such feedback control is not performed. Therefore, the target ratio cannot be reached.

On the other hand, in the present invention, since the step position ASTP which the control unit has memorized is corrected, even if the allowable step range continues being 0-200 steps, by correcting the step position ASTP, for example, from 200-190 steps (see Fig. 5), a step motor can be driven 10 more steps and the section that has not reached the target speed change ratio can be corrected.

The claimed invention is neither anticipated nor rendered obvious by Adachi et al. Reconsideration and withdrawal of the § 102 rejection are respectfully requested.

New claims 8-14 are presented to round out the claim coverage. Such claims are also patentable for the reasons stated above.

As all grounds of objection and rejection have been addressed and overcome, entry of this Amendment and issuance of a Notice of Allowance of the claims, as now presented, are respectfully solicited.

In the event that there are any questions relating to this Amendment or to the application in general, it would be appreciated if the Examiner would telephone the undersigned attorney concerning such questions so that the prosecution of this application may be expedited.

Please charge any shortage or credit any overpayment of fees to BLANK ROME LLP, Deposit Account No. 23-2185 (000560-00125). In the event that a petition for an extension of time is required to be submitted herewith and in the event that a separate petition does not accompany this response, Applicants hereby petition under 37 C.F.R. 1.136(a) for an extension of time for as many months as are required to render this submission timely.

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Any fees due are authorized above.

Respectfully submitted,

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Attachment: Amended Fig. 6

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